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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,990	11/21/2003	Rong-Chang Liang	07783.0013.NPUS00	9111
46006	7590	07/26/2005	EXAMINER	
HOWREY LLP C/O IP DOCKETING DEPARTMENT 2941 FAIRVIEW PARK DRIVE, SUITE 200 & 300 FALLS CHURCH, VA 22042-2924			HON, SOW FUN	
			ART UNIT	PAPER NUMBER
			1772	

DATE MAILED: 07/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/718,990

Applicant(s)

LIANG ET AL.

Examiner

Sow-Fun Hon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2005.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-18 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5/04, 12/04.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Amendment***

***Rejections Withdrawn***

1. The 35 U.S.C. 103(a) rejections of claims 1-4, 10-13 over Chen as the primary reference have been withdrawn due to Applicant's statement of common ownership in the response dated 05/03/05.

***Rejections Repeated***

2. The 35 U.S.C. 103(a) rejections of claims 5-9, 14-18 have been repeated for the same reasons previously of record in the Office action dated 01/05/05.

***New Rejections***

***Claim Objections***

3. Claims 1-18 are objected to because of the following informalities: Independent claims 1, 5, 10, 14 all recite "a thermoplastics" instead of the correct "a thermoplastic" in the singular. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 3 recites the limitation "microcup" which is not recited in parent claim 1.

Therefore there is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-7, 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Thomas (US 4,798,849).

Regarding claim 1, Thomas teaches a composition comprising a thermoplastic, a thermoset and liquid crystals (column 2, lines 62-64).

Regarding claim 2, Thomas teaches that the composition is molded and shaped (column 14, lines 44-46), meaning that the composition is embossable.

Regarding claim 3, Thomas teaches one embodiment of the composition wherein the liquid crystal is soluble in the bulk polymer (column 3, lines 50-57), and therefore has a concentration no greater than its solubility limit in the composition. The term “microcup” is not given any patentable weight here.

Regarding claim 4, the thermoset is an epoxide (epoxy resin) (column 3, lines 30-31).

Regarding claims 5, 7, Thomas teaches a composition comprising a thermoplastic, a thermoset (column 2, lines 62-64) and a comonomer which comprises a poly(ethylene glycol) or poly(propylene glycol) (column 10, lines 3-10), a speed

enhancing comonomer or oligomer as defined by Applicant's specification (original claim 7).

Regarding claim 6, Thomas teaches that the composition is molded and shaped (column 14, lines 44-46), meaning that the composition is embossable.

Regarding claim 9, the thermoset is an epoxide (epoxy resin) (column 3, lines 30-31).

### ***Response to Arguments***

8. Applicant's arguments filed 05/03/05 have been fully considered but they are not persuasive.

9. Applicant argues that Morita discloses a long laundry list of matrix material, thermosetting resins and photo-polymerizable oligomers, which in the absence of blaze marks would not reasonably lead one skilled in the art to any particular species, let alone the combination of some particular species.

Applicant is respectfully apprised that only dependent claims 7-8 recite distinct chemical species of "speed enhancing comonomer or oligomer", and that these can be combined with any generic thermoplastic or thermosetting resin matrix material in the composition as presently claimed. There is no combination of any chemical species of thermoplastic or thermosetting resin with the claimed chemical species of "speed enhancing comonomer or oligomer" in the present claims. Furthermore, Morita provides a list of photo-polymerizable monomers which function as reactive diluents, containing the specific claimed poly(ethylene glycol) diacrylate among other polyol

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diacrylates (column 16, lines 29-45), which have equivalency in terms of being a difunctional photo-polymerizable reactive diluent monomer. Applicant has not provided a showing of unexpected results with clear comparative data distinguishing the poly(ethylene glycol) diacrylate from the other acrylates taught by Morita.

10. Applicant argues that adding a "speed enhancing comonomer or oligomer" is very different from adding a photo-polymerizable monomer.

Applicant is respectfully apprised that the claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. See MPEP § 2112.01 with regard to inherency and product-by-process claims and MPEP § 2141.02 with regard to inherency and rejections under 35 U.S.C. 103.

11. Applicant argues that the "speed enhancing comonomer or oligomer" in the microcup composition can improve the switching rate and reduce the operation voltage or reorientation field strength, providing unexpected advantages.

Applicant is respectfully apprised that a chemical composition and its properties are inseparable. If the prior art teaches the chemical structure, the properties applicant discloses and/or claims are necessarily present. See MPEP 2112.01. Therefore a similar composition containing the poly(ethylene glycol) diacrylate of Morita is expected to have improved switching rate and operation voltage or reorientation field strength reduction.

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12. Applicant argues that Oguchi does not teach the combined use of a thermoplastic, thermoset or precursor thereof and a speed enhancing comonomer or oligomer.

Applicant is respectfully apprised that Morita is the primary reference which teaches the combination of materials, and is directed to the discussion above.

13. Applicant argues that the term "two or more layers" in present claim 10 is from the cross-section view as shown in Applicant's Figure 3a and 3b, [not from the top], and that two or more layers is therefore not taught by Schmidt.

Applicant is respectfully apprised that Schmidt teaches that the arrangement is in rows and columns (column 6, lines 7-12), which means that layers are also possible since the array of cavities is three-dimensional.

14. Applicant argues that the term "staggered" in claim 13 is intended to mean that one active area of a first layer of the microcup array is substantially overlapped with an inactive area of a second layer, which is on top, or underneath the first layer.

Applicant is respectfully reminded that these features are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

### ***Conclusion***

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number is (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached at (571)272-1498. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should



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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

*S. Hon*

Sow-Fun Hon

*07/18/05*

*[Signature]*  
HAROLD PYON  
SUPERVISORY PATENT EXAMINER  
*1772*

*7/22/05*